Health Consultation

UNIVERSITY PSYCHOLOGY CENTER MERCURY SPILL

WARREN, MACOMB COUNTY, MICHIGAN

AUGUST 25, 2000

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
Public Health Service
Agency for Toxic Substances and Disease Registry
Division of Health Assessment and Consultation
Atlanta, Georgia 30333

HEALTH CONSULTATION

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WARREN, MACOMB COUNTY, MICHIGAN

Prepared by:

Michigan Department of Community Health
Under a Cooperative Agreement with the
Agency for Toxic Substances and Disease Registry

Summary
A blood pressure measuring device broke in an outpatient counseling center in Warren, Michigan on the afternoon of August 2, 2000. Staff of the University Psychology Center contacted the appropriate health and environmental agencies and isolated the room. There was no indication that any of the individuals present in the room at the time of the spill were contaminated nor did any of them remove from the room any of the estimated three fluid ounces of mercury spilled. The U.S. EPA, Michigan Department of Community Health and the Macomb County Health Department advised the center staff and the local Fire Marshall regarding containment, clean up and the testing needed to safely reopen the center and use the affected rooms. After the appropriate actions, the site posed no apparent public health hazard.

Statement of Issues and Background

On August 3, 2000, the Michigan Department of Community Health (MDCH) Site Assessment Section (SAS) received a call from a staff member of the University Psychology Center (UPC) regarding a mercury spill at one of its offices located at 28800 Ryan Road, Suite 300, Warren, Michigan. The employee reported that on the previous afternoon a mercury sphygmomanometer, or blood pressure gauge, containing approximately 3 ounces of elemental mercury was broken in an examination/group meeting room. The three individuals in the room at the time were removed from the room and the room was isolated from further entry.

SAS asked the staff member the circumstances of the event and then recommended that they:

1. Close off any air return vents in the room that might transport mercury vapor to the air handling system.
2. Prevent anyone from vacuuming or brooming the affected area.
3. Contact the people that were in the room at the time and determine if anyone's clothes (especially shoes) had become contaminated and needed to be returned to the clinic in a sealed plastic bag.
4. Keep the room temperature as cool as possible to inhibit volatilization of the mercury.
5. Contact the Macomb County Health Department's Environmental Health Office.

The UPC employee said some of the mercury had already been picked up off the carpeted floor "with paper" and he would check regarding the other people in the room at the time of the spill.

SAS then received a call from the Environmental Protection Agency (EPA) Emergency Response Branch. They had been notified of the spill and, after visiting the site, were concerned to learn that the janitorial staff had vacuumed the carpet in the room in spite of efforts to prevent entry. They were investigating the situation and assisting the center in finding and securing the vacuum and arranging clean up of the affected areas and follow-up testing.

The Macomb County Health Department contacted SAS and indicated their involvement in the event and stated that the local Fire Marshall's office had a deputy on the scene who would probably appreciate our assistance. SAS called the UPC and spoke to the Deputy Fire Marshall.

He had not been able to confirm whether the room had been vacuumed and had not discovered where the vacuum might be at that time. He had learned that the broken mercury-containing blood pressure device, broken glass and any visible mercury beads had been picked up and placed in a red biohazard bag and removed to another room where biohazard material from all parts of the center was contained before disposal. SAS agreed with his intent to isolate both the room where the spill occurred and the room where the broken mercury device was being stored.

The EPA On Scene Coordinator (OSC) called SAS on Friday, 8/4/00 and gave an update of the circumstances at the clinic. After speaking to SAS on Thursday 8/3, the UPC staff had followed the recommendations given. For the sake of being protective of clients and worker health and safety, they decided to close the facility until it was tested after clean up. The EPA OSC found that the janitorial crew had picked up the visible beads and debris sometime after the event Wednesday afternoon, and then had vacuumed the rug. Luckily the vacuum had not been used in any other area afterwards. The initial scan of the building by the contractors using Jerome mercury vapor detection devices had shown minimal mercury levels (0 to 2$\mu g/m^3$) in the spill room and only one high reading (29$\mu g/m^3$) taken from the contaminated vacuum machine. The machine was disabled and set aside for disposal with the rest of the contaminated material. UPC, through Wayne State University, had engaged the services of an environmental contracting firm for clean up and testing. UPC and Wayne State did some air monitoring using their own personnel and equipment and submitted the samples to an analytical laboratory.

After consulting with the Agency for Toxic Substances and Disease Registry's Emergency Response Section, SAS decided that since the facility was open for business hours only and was not a residentially occupied structure, a cleanup goal in the range of 1 to 3 $\mu g/m^3$ was an appropriate clean up standard.

Discussion

The time between the spill event and the report was short and it appears there was little opportunity for transport of mercury beads or vapor. Based on the information available, there does not appear to be a need for biological testing of anyone associated with the event nor investigation for related contamination of any person, vehicle or location outside the UPC facility.

Conclusion

The site currently is considered to pose no apparent public health hazard because of the small amount of the spill, the localized area affected and the rapid response of university, environmental, fire, and health department representatives. However, if more information or data become available that indicate additional contamination is present, another consultation will be issued.

Recommendations

1. The spill room, the biohazard storage room, a waiting room, and a well-traveled hallway in the clinic should be tested with devices sensitive to low levels of mercury contamination to determine if the clean up standard has been achieved before they are returned to use.

2. The broken blood pressure device, the elemental mercury, the mercury contaminated vacuum machine, and the carpeting removed form the UPC should be disposed of properly as hazardous waste by the environmental contractor.

3. The UPC should consider replacing any other mercury-bearing devices with low- or non-mercury alternatives.

Public Health Actions

1. A draft of this health consultation has been shared with the agencies involved in this event.

2. SAS will continue to give verbal and written consultations as necessary to those associated with the UPC mercury event.

Prepared by:

Site Assessment Section

Brendan Boyle, Principal Investigator
John Filpus, Environmental Engineer

References

ATSDR Case Studies in Environmental Medicine, Mercury Toxicity, *1992*
ATSDR Toxicological Profile, Mercury (Update), 1999

CERTIFICATION

This University Psychology Center Mercury Spill Health Consultation was prepared by the Michigan Department of Community Health under a cooperative agreement with the Agency for Toxic Substances and Disease Registry (ATSDR). It is in accordance with approved methodology and procedures existing at the time the health consultation was begun.

Technical Project Officer, SPS, SSAB, DHAC, ATSDR

The Division of Health Assessment and Consultation, ATSDR, has reviewed this public health consultation and concurs with the findings.

Chief, State Program Section, SSAB, DHAC, ATSDR